



November/December 2014

Washington State Energy Office

Energy News

Energy News Overview

The decline in world oil prices that began slowly in July became a rout in December: see chart on page 4 for recent price trends. Since early July crude oil prices have fallen nearly 50 percent and US gasoline prices are down by more than 30 percent. The price declines are in part the result of growing oil production in the US, Canada and a couple of OPEC countries, but also because of slowing economies in Asia and Europe. Increased energy efficiency has also reduced oil demand growth. Prices will likely remain low until 1. production growth stops in the U.S and Canada., 2. OPEC lowers its production target or 3. global economic growth increases oil demand. Overall, lower oil and fuel prices act as a stimulant to the global economy—a \$20 decline in oil price is estimated to add 0.4 percent to global economic growth over 3 years. Of course some do not benefit from lower oil prices. Oil exporting nations such as Saudi Arabia, Russia, Venezuela and Iran, will see significant reductions in state revenues, and perhaps political instability. Sustained lower oil prices of around \$60 per barrel will also eventually have an impact on high cost producers such as Norway, US oil shale and offshore sites, and Canadian oil sands projects. Oil rig counts have already started to decline in the U.S. Removing or slowing the production growth of the high cost non-OPEC producers may be the goal of some of the more financially secure OPEC members.

The U.S. Commerce Department approved a series of steep solar tariffs on solar panel imports from China and Taiwan. Commerce determined that Chinese manufacturers were selling panels at below cost to gain market share and had damaged U.S. manufacturers: see article on page 5.

While several states are actively opposing the Obama Administration's Clean Power Plan, Governor Inslee sent a letter, along with the state's comments on the proposal, applauding the proposed EPA rule. The state comments generally supported the rule, but offered a number of suggestions for improvement. The Inslee statement and a link to the state comments can be found here: <http://www.governor.wa.gov/news/releases/article.aspx?id=379>

Governor Inslee released his cap & trade proposal on Dec. 16. If enacted, the program would generate roughly a billion dollars per year in revenue. Forty percent or \$400 million would be direct to funding transportation programs, another forty percent would fund new educational obligations. Other tax revenue or savings would be needed to fully fund state transportation and education needs. The cap & trade program would auction allowances to the largest GHG emitters, who would either pass the additional cost on, or would find ways to cost effectively reduce their GHG emissions and avoid the need for allowances. The number of allowances will slowly be reduced so the state reaches its 2035 emission target. http://www.governor.wa.gov/issues/climate/documents/CarbonPollutionAccountabilityAct2015_Z-0307.2.pdf

The Northwest Power and Conservation Council issued its report on hydropower potential in the Northwest. The report is in part a response to the U.S. Dept. of Energy study that identified 25,226 MW of capacity in the Pacific Northwest.

“Conclusion: The estimate in the Oak Ridge study, intentionally a very broad scan, is unrealistically high. The NHA analysis identifies the potential capacity in the region as 3,238 megawatts. Of that potential, 2,600 megawatts is in three large pumped-storage projects (one already exists; its output is being increased), 400 megawatts is in capacity upgrades to existing hydropower projects, and only 200 megawatts is in new stream reaches and conduits.

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What's Happening in the Energy Office

Carbon Tax Assessment Model Update

The Carbon Tax Assessment Model (CTAM), which is available on the Dept. of Commerce website, is being updated. CTAM is an Excel based model that forecasts CO2 emission reductions for Washington state after a carbon tax is applied. A new version will be posted by February 1, 2015. For more information contact Greg Nothstein greg.nothstein@commerce.wa.gov

Clean Energy Fund - Smart Grid Grant Program Update:

Two of the grid scale battery energy storage systems (BESS) co-funded by Washington State achieved milestones in December 2014.

Snohomish PUD – MESA1a was the first “grid scale” battery energy storage system to be energized in Washington. This is a 0.5 MW Li-Ion battery assembly from GSYausa that is connected a Parker Inverter and step up transformer located at Hardeson Substation in Everett. Site work began earlier this Fall and major equipment was delivered in October. Interconnection work continued through November and the overall system testing and commissioning began in December. This system will now begin operational testing and use case analysis in early 2015. A second set of 0.5 MW of Li-Ion batteries from LGChem for the MESA1b project will be delivered to the same substation in May 2015 for installation and testing.

Avista – The UET Vanadium Redox Flow 1.0MW battery system manufactured in Mukilteo was shipped to in Pullman on December 30, 2014. Site work began in November at the Schweitzer Engineering Labs (SEL) factory site. Interconnection work will continue through January and February 2015 with commissioning planned for March 2015. Operational testing and use case analysis will continue throughout 2015.

Two other BESS projects that are co-funded by the CEF SGGP are currently in the design, manufacturing and permitting stages. These are both scheduled for installation, commissioning and use case analysis throughout 2015. More on those later.

U.S Dept. of Energy Grant

The Pacific Coast Collaborative received a U.S. Department of Energy Grant to improve the market awareness of energy use in commercial buildings. The States of California, Oregon and Washington will share the \$425,000 three year grant to develop and support uniform policies for commercial energy benchmarking and disclosure. British Columbia will also participate as a partner. The project will be supported by the Institute for Market Transformation, Northwest Energy Efficiency Council and Ross Strategic. The project will be managed by the Washington State Department of Commerce. For more information, contact Chuck Murray, chuck.murray@commerce.wa.gov or 360 725-3113.

Electricity, Petroleum & Natural Gas Prices

Energy Price Overview

Crude oil prices have continued to decline during November and December: down by \$25 per barrel since the last newsletter and are hovering around \$55 per barrel for WTI: this is about \$42 per barrel lower than last year at this time. Growing supply from North America, slowing economies in Europe and Asia, and the reluctance of the large OPEC producers to give up market share are cited as the causative factors.

The rapid decline in crude oil prices is being reflected in falling retail prices for gasoline and diesel, with a majority of states posting average gasoline prices below \$2.5 per gal. a price range not seen since 2009 when the nation was in a deep recession. At the national level during the last full week in December U.S. gasoline and diesel prices averaged \$2.30 and \$3.21 per gallon respectively: 103 and 69 cents per gal. lower respectively than end of Dec. last year. In Washington state gasoline and diesel prices have also declined, averaging 2.56 and 3.23 respectively this last week in October, about 89 and 73 cents per gal. respectively lower than last year. Nationally and locally gasoline and diesel prices typically reach their annual lows in December.

The price for month ahead NYMEX natural gas declined slightly to \$3.71/MMBtu for the last week of December. Henry Hub spot prices have been running around \$3.29/MMBtu. Locally, the natural gas month-ahead future contract for Sumas this past week averaged \$3.43/MMBtu. The EIA reported a weekly natural gas storage withdrawal of 49 Bcf. Gas withdrawals have been running slightly behind the 5-year averages and storage is now "only" 4.9 percent below its 5-year average; in the West we are 1.3 percent below our 5 year average. In April national gas storage was 50 percent below the 5 year average for that month.

For December, electricity spot prices at the Mid C decreased by about \$4/megawatt-hr relative to November averaging \$31.2/megawatt-hr. Mid C spot market prices have declined from average summer prices of around \$40/megawatt-hr.

Energy Price Summary	Current	Month Ago	Year Ago
Monthly Range at Mid-C (Peak: \$ per MWh)	19-56.5	25-75	38-100
Average Mid C price (Peak hours \$ MWh)	31.2	35.3	59.0
Electricity WA Retail: Oct. (cents/kWh)	7.17	7.13	7.01
Natural gas Kingsgate spot price (next day: \$ per million BTU)	3.41	3.36	4.22
Natural gas Sumas futures price (next month \$ per million BTU)	3.05	3.32	4.57
Natural gas Sumas monthly average: Oct. (\$ per million BTU))	NA	3.85	3.39
Natural gas H.H. futures (NYMEX next month: \$ per million BTU)	3.71	4.23	4.28
E85 (national average: \$ per gallon gasoline)	2.66	3.29	3.83
Ethanol (CBT next month contract: \$ per gallon)	1.64	1.70	1.95
Corn (CBT next month contract: \$ per bushel)	4.09	3.75	4.51
Petroleum, West Texas Intermediate futures (\$ per barrel)	53.7	81.4	98.6
Seattle gasoline price (\$ per gallon)	2.69	3.31	3.42
Gasoline futures (NYMEX next month: \$ per gallon)	1.68	2.06	2.72
State diesel price (\$ per gallon)	3.23	3.79	3.96
Heating oil futures (NYMEX next month: \$ per gallon)	2.06	2.41	3.04
U.S. residential propane price report (reported Oct.-Mar.)	2.39	2.40	2.69
Clean Cities: Alternative Fuel Price Report, Oct 2014	US Avg current	West Coast current qtr	West Coast last qtr avg
Ethanol E85 (\$ per gas gallon equiv.)	4.06	4.53	5.06
Biodiesel B20 (\$ per diesel gallon equiv.)	3.89	4.06	4.22
Biodiesel B99-100 (\$ per diesel gallon equiv.)	4.63	4.79	4.83
Compressed Natural Gas (\$ per gas gallon equiv.)	2.16	2.41	2.42
Propane (\$ per gas gallon equiv.)	4.25	4.43	4.36

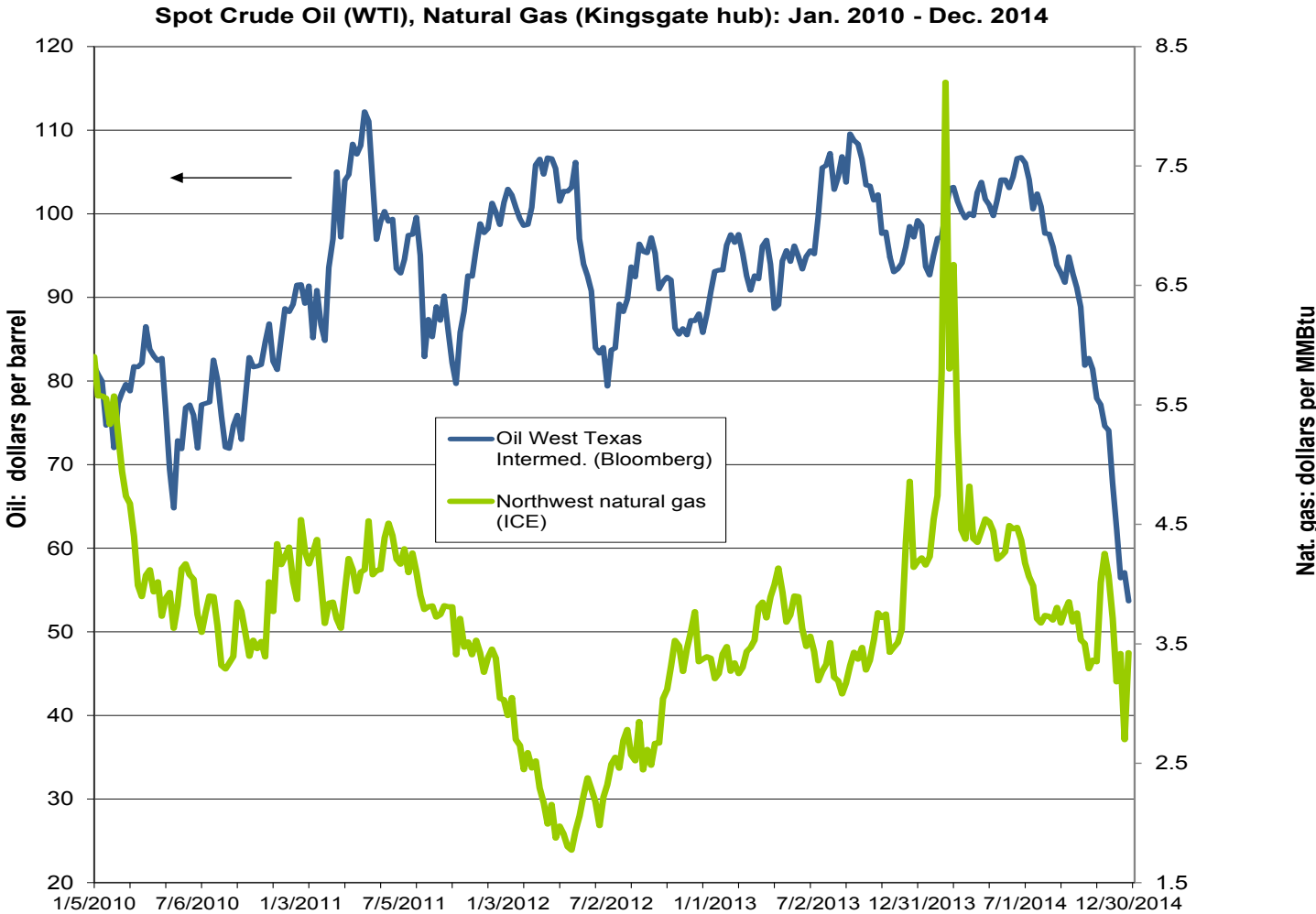
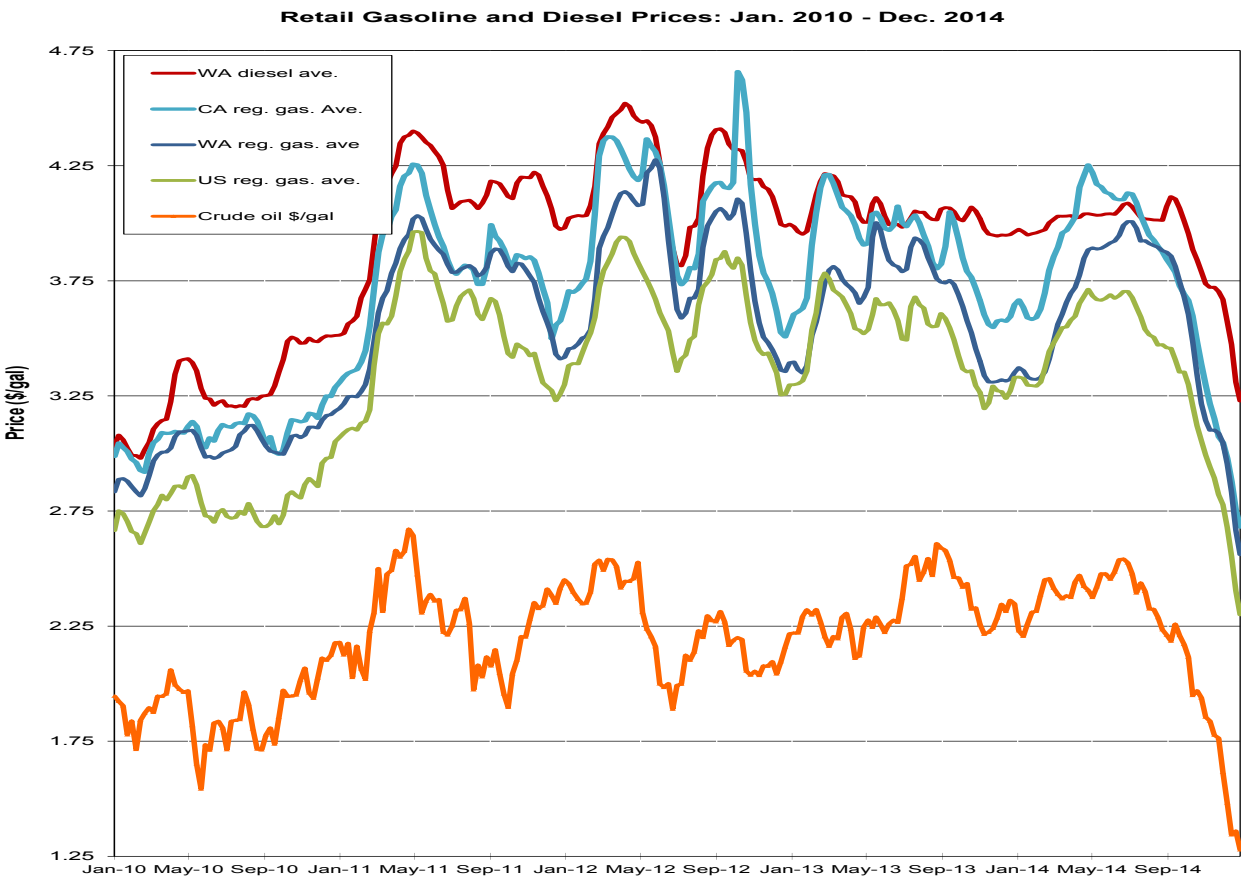
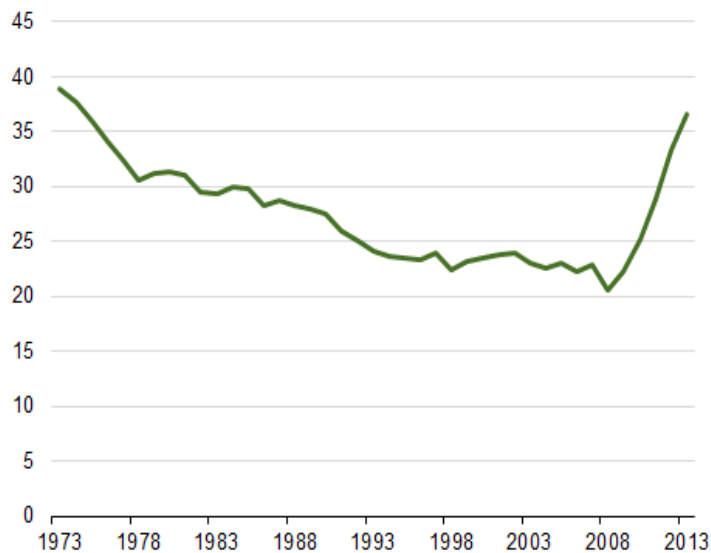


Figure 1. U.S. oil and natural gas proved reserves, 1973-2013

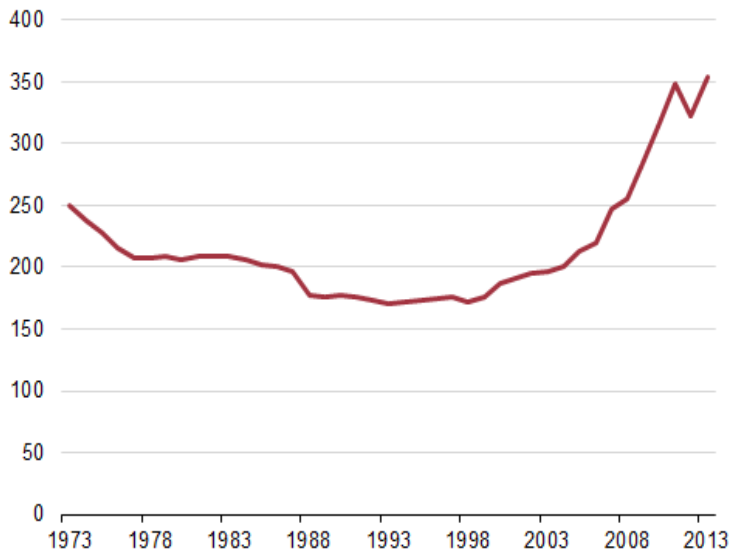
U.S. crude oil and lease condensate proved reserves

billion barrels



U.S. total natural gas proved reserves

trillion cubic feet



Sources: U.S. Energy Information Administration, Form EIA-23L, Annual Survey of Domestic Oil and Gas Reserves, 1977-2013, American Petroleum Institute, 1973-76.



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Washington State Governor Backs EPA Plan to Cut Emissions. Associated Press.

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<http://www.nytimes.com/2014/12/17/business/energy-environment/us-imposes-steep-tariffs-on-chinese-solar-panels.html?ref=energy-environment&r=0>

Study: Cost of Energy Efficiency Under Half That of New Generation. Utility Dive.

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Pacific Northwest's Regional Hydropower Potential Is Lower than Federal Estimate. NW Power & Conservation Council.

<http://www.nwcouncil.org/news/blog/regional-hydropower-potential-is-lower-than-federal-estimate/>

Columbia Generating Station: Study against Nuclear Power Plant Lacks Credibility. Tri-City Herald

http://www.tri-cityherald.com/2014/11/30/3285085_our-voice-study-against-nuclear.html?sp=/99/1426/&rh=1

California Motorists to Begin Shouldering Costs of Carbon Auction. Sacramento Bee.

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Why Oil Prices are Down by Half, What it Means for You. New York Times, Dec. 15.

<http://www.nytimes.com/aponline/2014/12/15/us/ap-us-oil-collapse-what-to-know.html>

Energy Headlines—continued

Cap & Trade/Carbon Tax

Governor Inslee's Cap-And-Trade Plan for Carbon Emitters Could Hit 130 Enterprises. News Trib.

http://www.thenewtribune.com/2014/12/20/3551595_inslee-cap-and-trade-plan-for.html?sp=/99/296/331/326/&rh=1

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The Cost of Carbon: Tax Would Be 'A Small Drag' on Oregon Economy. Portland Business Jor.

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Coal Demand Growth to Slow in Next Five Years on China, IEA says. Dec. 15, Bloomberg.

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<http://www.reuters.com/article/2014/12/09/exxon-mobil-energy-outlook-idUSL1N0TS10P20141209>

Electric Vehicles

Washington State Governor Seeks Tax Breaks, Maybe Car Pool Lanes for Electric Vehicles. Oregonian

http://www.oregonlive.com/environment/index.ssf/2014/11/washington_gov_inslee_seeks_ta.html

Editorial: Allow Washington State Sales Tax Break for Electric Cars to Expire. Everett Herald.

<http://www.heraldnet.com/article/20141201/OPINION01/141209967/Allow-sales-tax-break-for-electric-cars-to-expire>

Electric Cars Hurt Most among Renewables on Oil's Slump. Bloomberg News, Dec. 22.

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<http://www.nytimes.com/2014/12/29/us/in-north-dakota-where-oil-corruption-and-bodies-surface.html?ref=politics>

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Key World Energy Statistics 2013. International Energy Agency

<http://www.iea.org/publications/freepublications/publication/name-31287-en.html>

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First academic study released in EDF's groundbreaking methane emissions series. Environmental Defense Fund, Sept 2013.

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Redrawing the Energy-Climate Map. International Energy Agency, June 2013.

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Monthly Energy Review, EIA : <http://www.eia.gov/totalenergy/data/monthly/>

Short-term Energy Outlook, EIA : <http://www.eia.gov/forecasts/steo/>

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Annual Energy Outlook 2014: <http://www.eia.gov/forecasts/aeo/>

River & Snow Pack Info

- Observed Nov. stream flow at The Dalles: 122% of average.
- Observed Nov. precipitation above The Dalles: 123% of average.
- Forecast runoff at The Dalles, Aug : NA
- Forecast snowpack volume: NA.
- Federal hydropower generation in Nov. : 7,570 aMW, 2010-2014 average: 7,350 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): Nov. 81%, 5-year average: 79%.

River Flow

Average flow at Lower Snake and Columbia dams

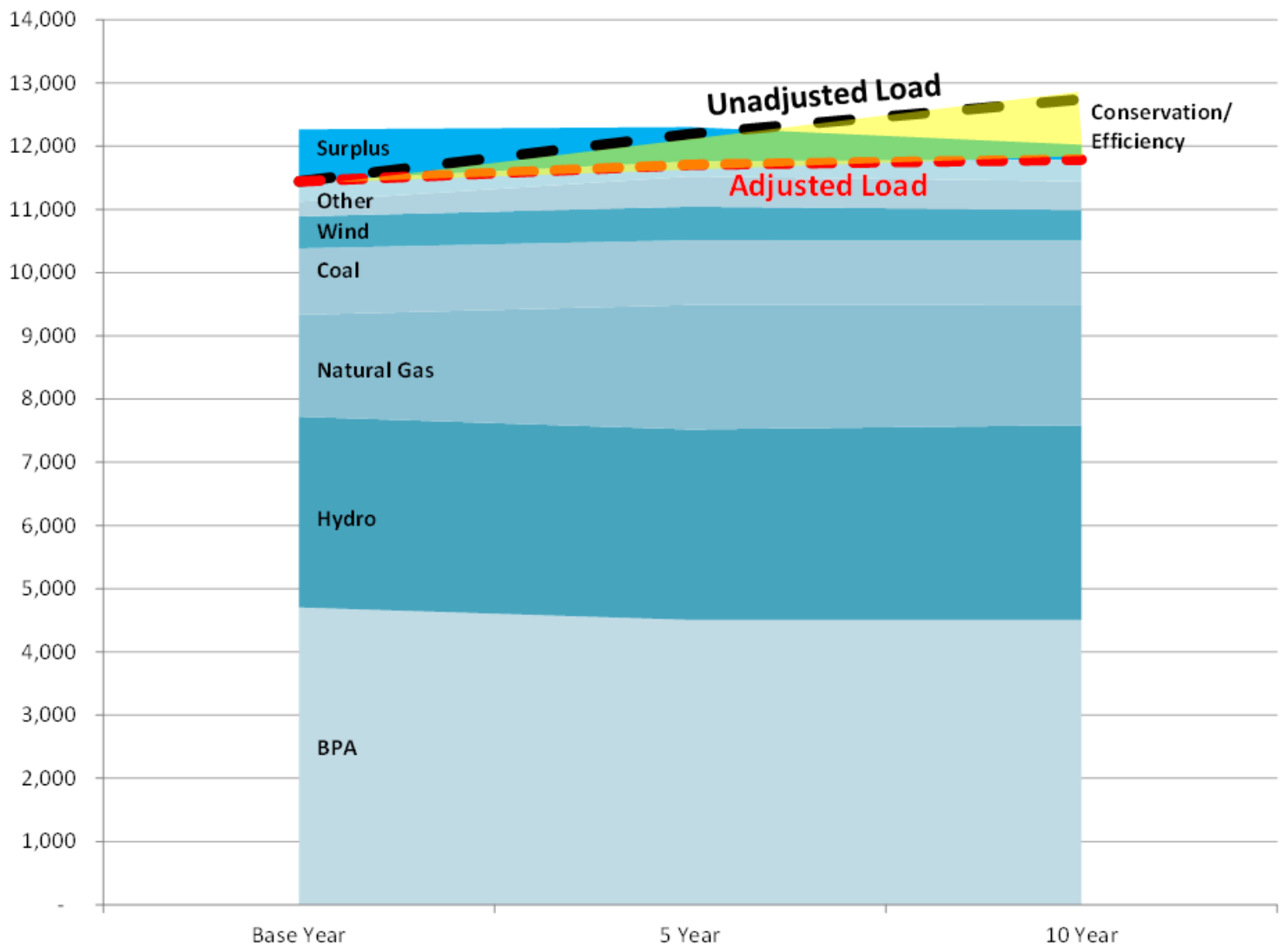
Data for December 22	Daily Outflow (kcfs)	Avg Dec 22 Outflow for last 10 years (kcfs)
Lower Granite	38.3	22.5
The Dalles	166.9	136.4

Washington State Electric Utility Resource Planning—Resources Intended to Meet Loads

Utilities may supply their customers using combinations of their own generating sources, through contracts with providers and generators, or by purchases from the spot market. Utilities reported resources by fuel or by method of purchase. The category “Other” includes spot market, contract, demand response, other renewables, distributed generation and other. BPA is the federal resource contribution to the electricity supply and is made up of a mix of energy sources, most of which is hydropower. Surplus represents the excess of resources over expected demand for power.

Contact Angela Burrell for more information at Angela.Burrell@commerce.wa.gov

Resource commitment by order of magnitude.



Department of Commerce
Innovation is in our nature.

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